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ABSTRACT

This booklet presents information on how total quality management can be applied to school systems to create educational improvement. Total quality management offers education a systemic approach and a new set of assessment tools. Chapter 1 provides a definition and historical overview of total quality management. Chapter 2 views the school district as a system and explains how it fits into the larger community system. Guidelines for fostering a consumer-supplier relationship to transform the school system are provided in the third chapter, and the principles of managing processes to ensure the cooperative interaction among subsystems for the optimization of the system are outlined in chapter 4. The fifth chapter describes analytic tools to measure educational change, and chapter 6 presents a flowchart and plan for continuous educational improvement. The final chapter offers 13 recommendations generated from the experiences of other school districts. Two figures are included. Research organizations and acknowledgments are listed. (LMI)

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American Association of School Administrators

CREATING QUALITY SCHOOLS

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FOREWORD

Schools Can't Do It Alone

According to an African proverb, it takes a whole village to raise a single child. Creating quality schools for our children is an effort that also takes the "whole village." Educators alone cannot do it; schools simply cannot ameliorate all of the conditions that make children fail to learn.

Total quality management, the latest major business idea to reach the schools, looks at meeting the needs of customers, including students, teachers, parents, and the public, as well as suppliers or all those whose products and services touch schools on a regular basis.

The total quality management practice of a dynamic customer/supplier relationship is a significant contribution to schools. Businesses know they cannot resolve their quality concerns without their suppliers' help. For example, businesses cannot accept faulty parts, but suppliers can suggest new ways to design parts or use materials.

Schools must work in the same manner to achieve quality. The Head Start program has been one of the all-time best examples of using quality principles: schools work with parents, the "suppliers," to ensure children are ready to start school. More effort is expended "up front" to give children the skills they need to succeed later.

Of course, what schools haven't tried to find ways to work more successfully with parents? Few, however, have achieved the results they hoped for because schools and parents are just part of the larger system that affects the quality of learning. The other key suppliers—legislatures, taxpayers, teacher preparation institutions—also must play their part. We need them involved in the quality revolution.

Enter Total Quality

American educators have always sought ideas about how they could make education better. Total quality management offers two new kinds of support. First, it requires a systemic approach to the practice of continuous improvement. This approach means educators are not alone. A total quality perspective requires the full participation of all those who have a stake in the education system. Quality recognizes that the system, not individuals, causes results, which means students, teachers,

and administrators are not to blame for falling test scores or other challenges.

Second, total quality management provides a new set of tools for uncovering the flaws in the system that cause less than desirable results.

Why This Booklet?

AASA believes total quality management can work for our schools, as it has in other organizations. But quality is definitely not a quick fix; it requires a long-term view and an attitude of continuous improvement.

The principles of total quality management have a powerful influence on AASA's public policy positions. The tools of quality are helping AASA improve on a daily basis, and we believe members will find them just as useful in their local communities.

The purpose of ***Creating Quality Schools*** is to provide educators and others with a basic understanding of how total quality management may be applied in school systems to improve the education and well-being of America's children.

This booklet is an introduction to total quality principles and tools, and it suggests some steps educators can take to foster quality in their school systems. ***Creating Quality Schools*** is not intended to describe every total quality management principle in detail, but rather to provide an overview so educators can have a basic foundation for building their own quality programs. A resource page at the end of the booklet lists some sources for more in-depth materials.

How To Recognize Quality

If certain students fail to get jobs, get into college, or are unable to function effectively as citizens, then those students did not receive a quality education. Simply put, a school practicing quality education meets and exceeds the learning needs of its ultimate customers—students, families, and the community. Education consultant John Jay Bonstingl sums up the vision for the new quality schools:

> "Education, in the new paradigm, will not be a delivery system for collections of fragmented information in the guise of curricula . . . Rather, education will be a process that encourages continual progress through the improvement of one's abilities, the expansion of one's interests, and the growth of one's character. Such an education would be good for the individual, good for the economy, and good for the commonweal we call society."

CHAPTER 1

What Is Total Quality Management?

Total quality management provides a long-term, systemic, transformational view of reform. In Michigan, the Ingham Intermediate School District defines it this way:

> "Total quality management is a philosophy and a set of principles that uses leadership, quantitative methods, systems thinking, and empowerment to improve continuously an organization's capacity to meet current and future customer needs."

Characteristics of Quality

Educators and others practicing quality are making a conscious effort to improve schools, the lives of children, society, and themselves through a set of principles and practices that are constantly evolving. Some of the widely agreed-on tenets of quality schooling include:

- Meeting and exceeding the needs of "customers"
- Working for continuous improvement
- Collaborating with other agencies
- Identifying common and special causes of variation
- Looking at and managing schools as systems
- Seeing problems as stemming from the system and its processes, not the employees or students
- Working in teams
- Investing in employee education and training
- Believing that people want to do well and will take responsibility when they see a purpose for their work.

The Transformation to Quality

Transformation means more than making minor adjustments in curriculum or scheduling; it involves a shifting of beliefs and attitudes

about what is possible. "Total quality management requires a change in organizational culture," explains Pauline N. Brody, chairperson of the Xerox Quality Forum, "a fundamental change in the way individuals and groups approach their work and their roles in an organization."

A holistic approach. A school system's transformation through quality management is less like changing medicines to cure an illness; it is more like healing the body holistically, preventing other illnesses from occurring, and mapping out a lifetime health plan.

THE BENEFITS

Brody suggests that total quality management, as it is being implemented, will usher in some fundamental perceptual changes:

> "From an environment of distrust and fear of reprisal to one of openness and trust where creativity can flourish; from working as individuals to working as teams; from protection of organizational turf to the breakdown of departmental barriers; from an autocratic management style of direction and control to a softer style of team leader and coach; from power concentrated at the top to power shared with employees; from a focus on results to a focus on the continuous improvement of the processes that deliver the results; and finally, a change from making decisions based on gut-feelings to an analytic, fact-based approach to management."

Total Quality and Other Reforms

The movement to introduce quality management principles into American schools complements, rather than competes with, other valuable models for restructuring education. Instructional and organizational reforms such as effective schools, essential schools, cooperative learning, accelerated schools, site-based management, and outcome-based education, along with total quality management, involve similar beliefs about children's capabilities for learning. They seek the best for American schools: an ever-improving school system that meets and exceeds the learning needs of today's children. Total quality management provides the tools and processes to accomplish the mutual aims of all education reform movements.

Training and involvement. Many school leaders have hooked into quality through the effective schools and outcome-based education movements. According to Terry Grier, superintendent of the Akron City School District, Ohio, "What quality has done for us is give us a framework under which school improvement fits so nicely. When you compare quality and other education reform programs, you see that they have more similarities than differences."

The History of Total Quality Management

Although advocates of total quality management include corporate consultants such as Joseph Juran and Philip Crosby, the best known American quality control pioneer is W. Edwards Deming, a statistician who taught quality management to the Japanese after World War II. Deming is credited with transforming Japanese industry.

The Japanese popularized the practice of quality control in manufacturing and extended it to design engineering and then to management. From there they spread the application of quality principles to all individuals in a company. Even though the Japanese significantly enriched Deming's original ideas, they still honor him as the founder of quality management.

Parallels in education. Many feel American education has much to learn from business' experience with quality management, and much to contribute to the quality movement. "American corporations woke up to the need for quality about 25 years ago, and the first 15 years were failures," commented Pat Dolan, quality consultant to corporations and educational organizations. "There is no reason why education should go back and replicate those corporate failures."

At this stage in education's relatively recent awakening to total quality management, says David M. Gangel, superintendent, Rappahannock County Public Schools, Virginia, "there is no substitute for a complete understanding of quality in the current business-industry terminology. The language of quality may be foreign to educators, but the promises of quality have education written all over them. Children and learning are too important to let words get in their way."

In Grier's district, extensive in-service training for teachers and administrators has been the key to integrating quality with education reform. But Grier emphasizes that people are not likely to take new reform efforts seriously unless the district demonstrates its commitment to improvement. "Training can't be one-shot deal," he says, "or people will tend to say 'We've tried that before and it doesn't work.' "

In addition to providing training, Akron's schools also have increased staff involvement in all aspects of the improvement process. New leadership teams in each school building, composed of teachers and the PTA president, are one example. These teams meet regularly with principals to discuss how they can work together to improve their schools.

Content-free. Total quality management can be thought of as content-free, applicable to any instruction or structural reform. As a holistic, districtwide process of empowerment, it has these distinguishing characteristics (each is discussed in more detail later in the booklet):

- Addressing the school district as a single system.
- Recognizing the usually invisible connections among those whose efforts influence learning, identifying them as interdependent "customers and suppliers," and using these relationships to align the minds and talents of people at all levels to all aspects of the school district's continuous improvement.
- Focusing the task of leadership on managing the system— aligning, connecting, and supporting the various elements that accomplish the schools' purposes.
- Providing a set of dependable tools and strategies that reduce perceived risks in "change."
- Capitalizing on each person's desire to get a little better each day, to learn from what doesn't work well, and to see progress toward committed objectives.

Glossary

Common cause. A result caused by the design or operation of the system or process. A fundamental change in design operation is required for improvement.

Continuous improvement. Study of processes within an organization to produce constant improvement through evaluation and implementation of ideas, learning, and suggestions. The goal of total quality management.

Customer. Recipient of a product or service from others inside or outside the system.

W. Edwards Deming. Recognized total quality expert. Deming worked extensively with Japanese industry on quality control. His work forms a substantial base of quality theory and knowledge.

Flow chart. An illustration of one or more processes within an organization.

Fourteen points. A summary of Deming's principles that he sees as the basis for transformation.

Optimization. All processes in an organization working together to achieve a stated aim.

Special cause. A result caused by a unique situation. Results may be improved by identifying and removing or correcting the condition.

Suboptimization. Some or all of an organization's processes impede each other in achieving its stated aim.

Supplier. Provider of a product or service to others inside or outside the system.

System. A network of functions or activities within an organization that work together for a shared aim.

Tampering. Making superficial changes to a system that only cause increased variation in performance, not improvement in results.

Total quality management. A structured system for meeting and exceeding needs by creating organization-wide participation in the planning and implementation of continuous improvement processes.

CHAPTER 2

The School District as a System

When creating quality schools, the most important change in perception is to recognize the school—or really the school district—precisely as a single, connected system, and to manage it as a one.

Unfortunately, this perception runs counter to the direct experiences of many people. Some employees may have a sense of how their job influences others as they strive to accomplish a common purpose. However, few roles in the schooling process allow direct experience with the entire school system.

Yet, the school district is the smallest, most permanent system of functions, relationships, and roles for meeting the learning needs of large numbers of children.

As a single system, a school district is made up of an interconnected set of components, forces, and relationships working together toward a common aim or purpose.

Differing views. Some school leaders view a school district as a mechanical system, like an automobile—a set of interconnected objects or parts that can be repaired or replaced if the system has problems or is not working. However, when managing schools for quality, the school district is viewed more as an organic or human system, in which relationships among parts become a key factor. All the parts work together and can compensate for weaknesses in each other. They can work to become permanently more effective than they are now, and can become a system capable of continued growth and vitality.

THE HEART OF THE MATTER

In the human body, the heart muscle operates not simply for its own optimal functioning, but always for the good of the entire organism. For example, when people jog, their hearts work more rapidly to support their running muscles and compensate for the stress on their lungs; the heart also must pump more blood to the skin to keep the body from overheating. The heart works not just for itself, but primarily for the vitality and optimization of the whole system.

In a similar way, each employee in a quality-managed school system knows how his or her work and role relates to all the others, and everyone has opportunities to work together for the improvement and optimization of the whole school system.

"Quality cannot be achieved in certain segments of the system," explains G. Thomas Houlihan, superintendent of the Johnston County School District in North Carolina. "Total quality means just that: quality in every segment of the system. Custodial practices, teaching techniques, administrative practices, and boardsmanship must be examined to focus on total quality. No individual or group can be exempted, as quality depends upon continual improvement of everyone associated with the district."

SYSTEMS WITHIN SYSTEMS

Total quality management also encourages people to see how the school district fits into the larger community system. For example, Quality New Jersey is a coalition of business, education, and government leaders interested in promoting quality throughout the state. According to Philip Esbrandt, superintendent, Cherry Hill School District, "Its mission is to encourage the application of total quality management philosophies and methods through a team effort focusing on continual improvement of industry, health services, education, government, and the environment to improve the quality of life in New Jersey."

Every System Must Have an Aim

The two basic characteristics of any system are (1) a set of interacting forces working for (2) an agreed-upon aim or purpose. "Without an aim or purpose," says W. Edwards Deming, "there is no system."

Thus, to operate systemically, any quality school district must answer the key question: What is the system's aim or purpose? No "right" answer to this question exists, but everyone must share the purpose and be involved in accomplishing it.

Here are a few examples of school system aims and purposes:

To create lifetime learners
To develop students who enjoy learning
To graduate productive members of society
To produce employable people
To foster people committed to cooperation with others
To develop continually improving learners
To provide ever-increasing benefits for everyone in the community.

CHARACTERISTICS OF EFFECTIVE AIMS

In creating a shared aim for a quality school system, look for the following characteristics:

Easily understood. First, whatever the aim, it should be one that everyone who participates in the system can understand and support, from parents and community members to teachers, students, school board members, food service personnel, and others. "In the quality model," says Pat Dolan, "everyone knows what they are all doing together, as an organization." Every person who is part of the school system, when asked, should be able to state the district's aim and explain how his or her work contributes to it.

In 1984, Larrae Rocheleau accepted the job of starting a new school for mostly Native American students, the now-famous Mt. Edgecumbe High School in Sitka, Alaska. Rocheleau's aim for his school was to "turn these students into entrepreneurs who would go back to their villages and make a difference," while appreciating their tribal customs and language.

The school's mission statement, prepared by the staff and students together, notes: "The school prepares students to make the transition to adulthood . . . Opportunities for leadership, public service, and entrepreneurship are integrated into the program, both during and after regular school hours."

Pertinent to individuals. Second, individuals in the system need to know how they relate to the aim, how their work contributes to that larger purpose. For example, Denny Dowd, executive assistant to the superintendent of the Arlington Independent School District in Texas, points out that to become a total quality school district, their vision statement clearly states: "This vision of total quality will only come to fruition as it is believed, internalized, and reinforced by every stakeholder at every level of our organization." (A stakeholder is any person holding a share or interest in an enterprise.)

A greater purpose. Third, a school system's aim should somehow benefit everyone in the larger community. The clarity and desirability of the school system's aim gets everyone working together cooperatively to achieve that aim.

In New Jersey, companies such as Bellcore (Bell Atlantic's Research Facility), AT&T, and others are developing training components and tools for total quality management in school districts. "This spring," says Philip Esbrandt, superintendent, Cherry Hill School District, "these corporations will sponsor a five-day workshop to help prepare eight school district administrative teams to implement quality concepts and practices in their districts and schools."

CHAPTER 3

Customer Supplier Relationships

"Only the customer can be the ultimate judge of quality," says Susan Leddick of Profound Knowledge Resources in Dallas. In creating quality schools, meeting and exceeding the needs of "customers" is the motivation behind all actions. The entire school system is customer focused and is seen as a network of customer/supplier relationships.

Customers in education. Some educators feel uncomfortable with the term "customer" as applied to children, parents, and society. They also are not used to viewing their associates as customers and suppliers. However, the terms are used simply to emphasize the concept of providing the best service to those who receive one's efforts.

"Quality begins and ends with the customer," says Leddick. Or, in the words of Earl C. Conway, an executive at Procter & Gamble, "Quality is the unyielding and continuing effort by everyone in an organization to understand, meet, and exceed the needs of its customers."

Who Is the Customer?

"In quality management," explains Leddick, "a customer is someone or something that uses the product of your work. Period. Whether money changes hands is irrelevant."

Thus, whenever people are providing goods, information, and/or services to somebody, even within the organization, that somebody is their customer. Similarly, whenever they go to somebody for goods, information, and/or services, even within the organization, that somebody is their supplier.

From this definition, it is easy to see that, at certain times, each person in the school system—whether student, professional, or classified staff—is a customer, a next-in-line recipient of a product or service from others contributing to the process. At other times, each person acts as a supplier, or provider of goods or services to others in the system.

Leddick says, if someone wants to know who his or her customers are, simply ask: "Who uses my work to do their work?" For schools, some customers and suppliers are external to the system, such as taxpayers and textbook publishers. However, many customers are internal: those in the school system mutually providing and consuming products and services for each other. But the school's most important customers may well be the parents of children who do and will attend the schools.

RAISON D'ETRE

Organizations draw their reason for being by identifying customers with needs. "Quality schools begin with an understanding of purpose derived from customer need," explains Leddick. "They improve over time by listening carefully to their customers and drawing ever closer to the changing needs that emerge."

This customer/supplier perception allows employees to jump past the hierarchical mentality ("He's my boss") or the isolation mentality ("I don't need others in order to do my job").

CUSTOMER/SUPPLIER RELATIONSHIPS IN SCHOOLS

District office staff and principals, as well as teachers, are customers and suppliers for each other. Principals may supply teachers with advocacy, budgets, class schedules, management of programs, and curricula. Teachers, on the other hand, may supply principals with information about student attendance and grades, parental feedback, and record-keeping, not to mention the immeasurable service of teaching the children in the principal's school.

Between teachers and students, a mutual and reciprocal customer/supplier relationship is present. Teachers provide the services of instruction, coaching, and monitoring progress. In turn, students are the very reason for a teacher's chosen career, and they provide teachers with feedback on the success of their instructional practices.

Even students helping each other in the classroom, library, or cafeteria can be examples of customer/supplier relationships. Students may serve as coaches to each other, work together on a classroom project, or share skills with a debating team, for example.

"It is counterproductive to ask for a single answer to the question, 'Who is the customer in public education?'" says Leddick. "It all depends on perspective."

The following figure suggests a number of the customer/supplier relationships that operate in a school system.

Customer	Supplier	Product/Service
Board of Education	Superintendent	Info. about administration of policy, programs, schools, students, achievements, accountability
Superintendent	Board of Education	Info. about community needs, opinions, personnel policies, evaluation
Superintendent	District Administrators	Reports, management of subsystems, info. on student learning
District Administrators	Superintendent	Leadership, direction, encouragement, assistance
Superintendent	Asst. Business Affairs	Data for budget
Outside Contractors	Asst. Business Affairs	Info. for bids on school construction
Asst. Business Affairs	Maintenance Depts.	Reports on district cap. improvement project requirements
Office Secretary	Dir. of Instruction	Data for typed report on curriculum assessment
PTA and parents	Principal	School info.
Students	Teachers	Instruction, coaching
Students	School	Classrooms, supplies, food, transportation, teachers
School	Community	Financial support, volunteers, involvement of businesses
Community	School	Graduates ready to be good citizens and workers

The Transforming Power of Customer/Supplier Attitudes

How does the customer/supplier perspective transform a school system? In at least five ways:

1. The entire school district turns into a service system at every level and between every pair of people within the system. "It's a challenge to legitimize customer judgments," observes Leddick. "As professionals, we may be accustomed to telling, not listening. Quality management dashes that practice."

2. The system gains tremendous power from its shared aim or purpose. The service orientation is not simply to please or impress the recipient of the service (though that is very welcome). Any service is always targeted at achieving the aim or purpose of the entire

school system. Thus, service is always carried out in the context of the system's aim and its optimization.

3. In a customer/supplier approach, every person in the system is a winner, since everyone is working for the success of the whole school district. Success is defined as a system that meets the learning needs of all the students, as well as the other people in the system.

   For the success or optimization of the system, it is not enough that only the students become better learners, for then the system itself would never improve. It is essential that the teachers, administrators, and staff continually improve themselves by becoming better learners and providers of learning, thus improving the whole system.

4. Competition between the customer and supplier is unnecessary and undesirable. As Leddick points out, " 'Customer' is not a fighting word when we understand the concept."

5. The customer/supplier perspective highlights the interdependence and reciprocity of all who touch the lives of children in the system, including food service personnel, bus drivers, maintenance and custodial people, and office staff. Their efforts can be aligned with all others to achieve the school system's aim.

THE NEED FOR NEW CUSTOMER/SUPPLIER RELATIONSHIPS

Maintaining a commitment to systemic, fundamental change in school districts requires establishing new partnerships among all of a community's services and agencies that influence the healthy development of children and learning.

Unless all students come to school each day ready to learn—meaning they are healthy, rested, nourished, and attentive—schools only will be marginally effective. In particular, schools alone cannot overcome the desperate conditions of poverty-stricken students. In a quality education system, collaboration between schools, families, governments, and social services agencies is paramount.

CHAPTER 4

Managing the Total System for Quality

Quality management is not hierarchical; it focuses on managing processes, not things. Educators are challenged to look at a school district as a system of interrelated processes and people; as customer/supplier relationships. When the output of the school is unacceptable, quality management does not look for someone to blame, but studies the system to see how it can be improved.

Optimizing the System

In a quality approach, the school system counts on the cooperative interaction of all its subsystems (individual classrooms and school buildings) for the benefit of the whole system (the district). When subsystems act independently and only in their own best interests, or even in competition with other subsystems, it is called suboptimization. Pitting one school against another in a competition for survival is suboptimizing. Improving single schools with no central support structure would lead only to temporary improvements. A school-by-school approach to improvement would suboptimize spending, staffing, and curriculum decisions as each school seeks to protect its own scarce resources.

"Rather than dealing with pieces of the puzzle—like how to reform the curriculum or downsize the central office—total quality management focuses on systemic change," explains education writer Lynn Olson.

A PRIMARY TASK IS MANAGING PROCESSES

A leader in a school system has the primary task of managing processes and seeing that all work together for the optimization of the system. The leader needs to know all the connections in these

processes and be able to identify the points of disconnection, redundancy, and opportunities for improvement. The power of total quality management tools and processes is most evident at these problem points.

The people who are most closely involved with any process are the ones who need to understand it the best and know how to improve it. Management's job is to ensure that staff have the knowledge, tools, and conditions to make improvement happen.

Team Building

One important tenet of systems thinking is to involve those closest to the "action" in the decision-making process. Thus, in working on quality challenges in the classroom, school leaders would listen closely to teachers, curriculum specialists, students, and others who have first-hand knowledge of day-to-day classroom needs.

Decisions about a process are best made by cross-functional teams, which would include a representative of every step involved in that process. Sometimes cooperative and team relationships extend beyond the school to include external suppliers, agencies, and other associations.

"Win-win strategies can be developed," says Pauline Brody, "by respecting the goals of each party and seeking to establish solutions that satisfy common needs."

Believe the Best

Another principle of quality is the belief that everyone within a system is intrinsically motivated by a desire to do his or her best. This idea follows the footsteps of psychologist David McGregor's longstanding theories of X and Y. Theory X, in McGregor's view, sees people as lazy; they work only because they have to. In this outmoded view, managers control and lead. On the other hand, Theory Y states that people want to be responsible and involved in their work. In schools, Theory Y would hold true for students and for employees.

"The essential task of management is to arrange the organizational conditions and methods of operation so that people can achieve their own goals by directing their own efforts toward organizational objectives," McGregor said.

North Carolina Superintendent Houlihan adds to these quality principles as he describes his school system's vision: "Johnston County Schools must believe in people, eliminate barriers so there is joy in work, and seek to make decisions based on data, rather than on opinions or emotions. We must recognize that most of the problems are caused by the school system and are not due to a particular circumstance or particular individuals."

Support Training

Education and training for all people involved is essential, and must be designed to support the transformation to quality and the strategy of teamwork. Investment in learning is a critical part of total quality management, since improvement comes from learning more and applying that learning to work processes.

Appropriate training can lead to improvement of teaching and learning processes. "Once learning processes are improved to the point that students learn what is needed the first time," observes Superintendent Gangel, "schools will reduce the need for remediation and its associated costs."

A New Paradigm

Quality is not about putting out fires, but about redesigning the system and the way it is managed so that there are fewer fires to put out.

Also, quality management does not judge the system or the people in it by what has been done in the past. In creating quality schools, instead of focusing on the chain of command, the focus is on the chain of service or production. Quality management is interested in continually improving the processes of the system so that it can produce increasingly better products and services at lower costs.

"The continuous improvement process does not cost anything," asserts Larrae Rocheleau of Sitka, Alaska. "It is basically a change of attitude. Typically in education, what we've done in the past is throw money at problems rather than look at the management system of education."

CHAPTER 5

Using Tools To Pinpoint Variation

An important feature of total quality management is its use of statistical tools to reduce variation and improve processes. Because of their limited training in statistical concepts, many educators fear this facet of quality, or don't find it relevant to education. But some pioneers in applying statistical process control to education have found powerful tools for change.

QUALITATIVE AND QUANTITATIVE INFORMATION

Total quality tools provide ways to understand conditions and the influences on them, to identify solutions that will make fundamental changes and not just treat symptoms, and to focus on the schools' efforts where they will count the most. These tools and methods work by tapping into two valuable forms of information in the work setting: *qualitative information* from the experience and expertise of those closest to problems, and *quantitative information* from data potentially available in the daily work processes of schools.

Qualitative analysis tools. In total quality management, methods for generating and analyzing information provide ways to capitalize on qualitative information in group-based, problem-solving formats. Tools such as control, run, and Pareto charts provide school practitioners with new lenses for looking within their work processes, so they can tap into the rich veins of quantitative data for improving their own approaches.

Working continuously to improve an entire school system, says Alan M. Blankstein, president of the National Education Service, "requires extensive collection of data to determine which systems need attention" (*Educational Leadership*, March 1992).

Using quantitative data. In a traditional culture of "isolated practice," little quantitative data are collected and transformed into usable information for those closest to the problems. Intermediate or end

results data, such as test scores or dropout rates, usually are provided to those outside the work setting for accountability or other judgmental use. For many, total quality management's use of results data to ensure success, rather than judge it, is a transforming experience. "Process, not personnel, is considered first for improvement," explains Superintendent David Gangel of Virginia. "If a problem related to learning emerges, examine first the instructional process, not the instructor."

The Process and the Individual

A quality approach to improvement uses analytical tools, such as basic statistical techniques based on the theory of Walter Shewhart. Simply put, Shewhart demonstrated through statistical analysis that at least 80 percent of the variation of any system's output is caused by the system or process itself, not by the individual. An education example would be that most students fail to learn, not because they or their teachers are at fault, but because the learning process is insufficient to their needs. Each child has different needs and learning styles.

W. Edwards Deming has used the Shewhart theory to demonstrate that by understanding the variation in a process, one can determine the most effective way to remove the impediments to performance. Imagine the education improvement that would be possible if 80 percent of the impediments to learning could be removed through a clearer understanding of learning processes.

IN OR OUT OF CONTROL

Variation is natural and inevitable in any system. Instead of trying to eliminate variation, a quality organization tries to identify its causes and decide where controlling variation will be most useful. An understanding of "in control" and "out of control" systems, as well as common and special causes, is necessary to make this decision.

Deming says that systems are either "in control" or "out of control." By "in control" or stable, he means variation in the system is within certain defined, tolerable limits. Improvement in results is possible by improving the system itself, usually by addressing common causes. For example, if school buses are continually late because they get stuck in traffic, telling bus drivers to be more punctual won't improve results. Instead, planning new bus routes through less congested roads may be necessary.

On the other hand, variation in an "out of control" or unstable system fluctuates and is caused by unusual circumstances, known as special causes. In a 1992 conference for educators, Deming used the school bus example on the next page to illustrate special causes, such as a new driver or broken door-closer. Familiarizing the new driver

Example of Special Causes

with his or her route or repairing the faulty part would eliminate these delays in school bus arrival times.

MEASURE, BUT DON'T TAMPER

School leaders, when managing for quality, can make decisions based on facts and knowledge using statistical tools to measure the variations. "In a quality school," writes Myron Tribus, a quality consultant for corporations who has become interested in applying quality principles to education, "statistics are a tool for students and educators to use to improve their own approach to learning."

The responsibility for improving the system is in the hands of school leaders who alone can change the system. But Deming warns management against tampering with the system. In a school system, tampering may occur when educators try to correct for unwanted variation by making adjustments to the system, without knowing what effect change will have on it.

Examples of tampering in a school system include:

- Adjusting the budget based on last year's figures;
- Reacting to a complaint from a customer, such as a parent;
- Reacting to rumors; and
- Changing school policy based on the latest attitude survey.

Flow Charting

One way to begin seeing improvement issues in a school district is to draw a flow chart of the system and to identify processes in it.

A flow chart is different from an organizational chart, which describes the school district's reporting relationships or chain of command. An organizational chart tells who can give orders to whom, but it doesn't describe how specific functions fit into the district's processes and how those functions can help the school system fulfill its aim or purpose. Describing a process is the aim of a flow chart.

RAW MATERIALS TO FINISHED PRODUCT

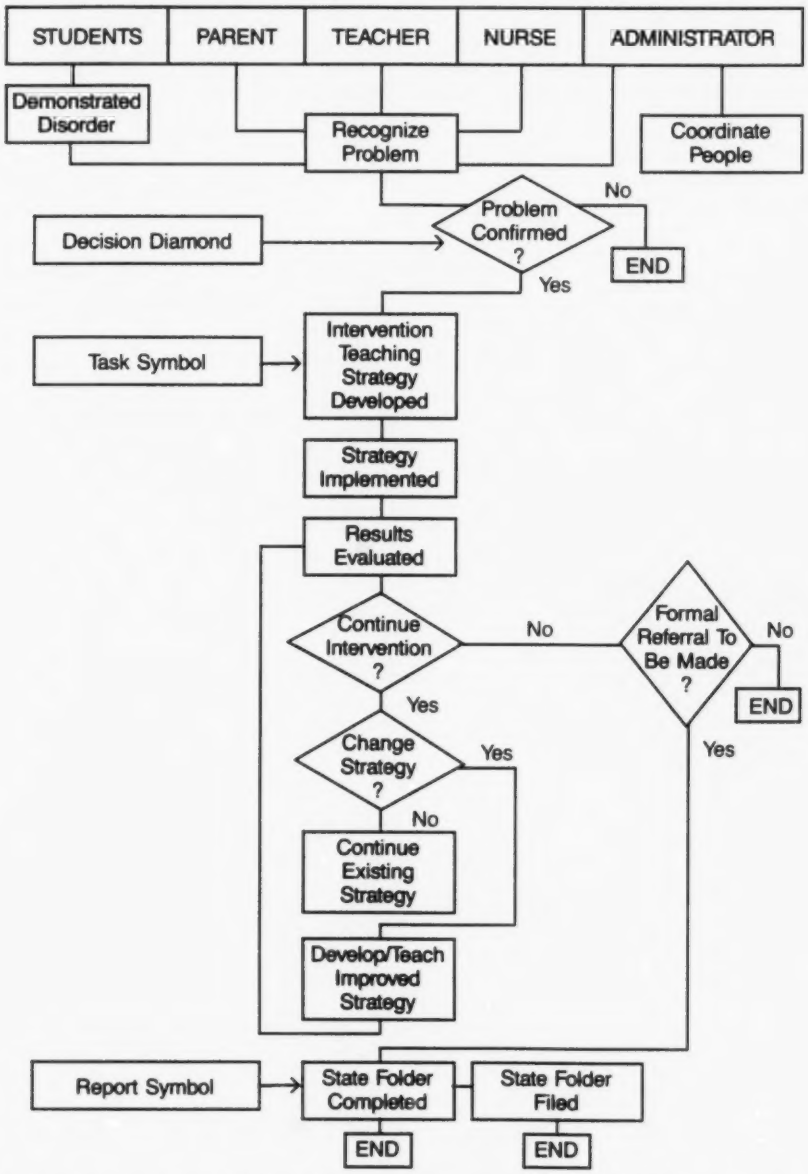
In manufacturing, a flow chart usually begins with the various raw materials from suppliers coming into the plant. The chart then follows, step by step, the progress of the raw materials as they go through the manufacturing process, until the product is finished and finds its way to the customer or consumer. A company, like a school system, that delivers primarily services rather than products can have a similar flow chart, except the path of service is traced.

Flow charts for schools. In a school district, the raw materials that will find their way onto a flow chart may include not only the incoming students, but also the federal and state laws and monies, school district policies, union contracts, and social conditions. On the flow chart, the ultimate customers and consumers are noted, as well. Examples include parents, colleges and universities, Armed Forces, businesses and corporations, and the tax-paying community. The process of schooling includes all elements of instruction, management, support, renewal, community relations, and human resources.

Flow charts also may be used for smaller processes, such as a textbook adoption process or a curriculum review system. Often, pinpointing hitches in a process is easier with a visual aid.

Sample Flow Chart

Shown below is an example of a flow chart created by an improvement team in a school to improve the process of referring children for speech therapy. This style of flow chart is called "deployment" flow charting, because it shows who is responsible, or deployed, to carry out each task or activity in the process. This style is particularly useful in administrative and service environments, but it can be used for almost any process.



Adapted from: Myron Tribus. *Deployment Flow Charting.* (Los Angeles: Quality and Productivity, Inc., 1989)

CHAPTER 6

Continuous Improvement

Just getting by with "good results" from schools is no longer sufficient. Society's dynamically-changing demands require that schools have the flexibility to respond to changing student needs and social requirements.

The days when schools could design their instructional and other learning support processes on the presumption that students were relative "blank slates" are over. Actually, this situation never existed. The job of tailoring specific instruction to individual children usually was left to the classroom teacher.

Quality school systems, on the other hand, constantly improve the appropriateness and responsiveness of their services. Key elements that make this improvement possible are:

- Information gathering and analysis, including identification of common and special causes;
- Managing as a single system of interdependent individuals;
- Drawing upon the minds and talents of individuals, inside and outside the system, who are committed to a clear mission;
- Placing responsibility for improving schools in the hands of those with the experience to do it and, more importantly, providing problem-solving tools for educators within their continuing work processes;
- Capitalizing on each person's innate motivation to make a difference with kids.

This last element is the hidden driver in quality organizations. The human mind is naturally "programmed" for continual, trial-and-error learning in the direction of its desired purposes. Quality schools count on this common characteristic as they align everyone's purposes within a common vision and mission, and provide them with the tools and information to learn continually from the consequences of their actions.

Continuous Learning

In a quality school, one notices that everyone in the system, not just the students, is constantly learnirfg. School leaders encourage

employees to continually elevate their technical skills and professional expertise.

For example, the mission statement for the Berea City Schools in Ohio reflects this keystone of quality management:

> "To provide a continuously improving educational environment in an atmosphere of mutual respect to enhance the development of the individual's inherent love of learning."

The "individual" referred to includes not only students, but teachers, administrators, school leaders, and all other employees. In the Berea City Schools, says Jack Marsick, a total quality facilitator, "The transportation, maintenance, and food service departments have all received TQS [total quality school] training."

As part of a class on quality, students in the Ware Shoals High School, South Carolina, adapted the continuous improvement principle in the following words:

> "Improve constantly and forever every process for teaching, studying, and learning by focusing on how students produce quality work best and what factors tend to make them more productive."

In Michigan, the Ingham Intermediate School District developed a "Learning Network" within their system so that everyone would have resources for continuous learning. Superintendent Donald Shebuski said that the Learning Network includes "conducting total quality management concept introductory training for all administrative staff and setting up a resource bank/sharing network."

A Technique for Continuous Improvement

When confronted with a problem, the mind naturally begins by assessing the situation and planning to try some action. After completing the action, the brain checks the results. Based on a review of those results, the mind chooses either to take action or to revise its plan and try something else.

The four innately programmed learning steps are:

1. Plan what to do
2. Do it
3. Study and assess the results
4. Act on what was learned from the assessment.

In quality management, these four steps are called the **PDSA Cycle**.

- **Step 1: PLAN** is crucial. According to Deming: "Step 1 is the foundation of the whole cycle. A hasty start may be wrong, costly, and frustrating. People have a weakness to short-circuit this step. They cannot wait to get into motion, to be active, to look busy, move into Step 2. Care in Step 1 may lead to a whole new, more mature idea."

  Any new plan must be based on knowledge and sound theory, according to Deming. Knowledge comes from understanding the system through statistical analysis. Theory comes from experience.
- **Step 2: DO** is when people carry out the test or experiment, preferably on a small scale. This is a time to keep data on processes.
- **Step 3: STUDY** is the time to examine the results. Look at the data, control charts, or other statistical measurements that were done. Do the results correspond with hopes and expectations? If not, ask what went wrong. Do not move to Step 4 until the results have been assessed.
- **Step 4: ACT** is the time to adjust the experiment in accordance with the assessment. Perhaps a new plan and a fresh start are needed.

In a school district, an example of the PDSA Cycle at work might be the decision to develop a new textbook selection process. After careful planning (Step 1), a new process is implemented (Step 2). Next, administrators and teachers would analyze student performance with the new textbooks (Step 3), and make any necessary revisions or changes needed for improvement. The PDSA Cycle would then be repeated as necessary by analyzing how the latest changes improved performance, and then by making other needed revisions (Step 4).

The same four steps for continual improvement apply to individuals, groups, and entire systems. The PDSA Cycle may be used for innovation or improvement of a product, service, or process.

Students Develop Theory of Education

Twelve seniors in the Ware Shoals School District in South Carolina enrolled in a class called "Quality Transformation in the Workplace." After researching quality concepts, they developed a theory of education. Here are a few examples:

1. Teachers need to remember that all students learn in different ways. To this end, we should institute new teaching methods that address these differences and show the relevance of material learned to the real world . . .
2. Don't scare students into learning. Instead, create an environment that encourages learning. Rid the fear of failure and/or embarrassment. Allow students to produce work for which they can be proud.
3. Do not discriminate between age, race, sex, and ability levels. Encourage teamwork among students, administrators, staff, parents, and teachers to improve the quality of education.
4. Motivate students to do quality work by showing them how, instead of just telling them! Try to get the class more active by cutting down on the number of lectures. Allow mistakes and let students be able to learn from their mistakes. Encourage risk taking in the educational process.
5. Cultivate pride in workmanship between teachers and students. Teachers should not dwell on the quantity of work completed, instead they should encourage students to improve the quality of work completed. Award students for honest efforts so that they do not lose their self-confidence and therefore lose interest in learning.

CHAPTER 7

Guidelines Some School Districts Have Found Helpful

Total quality management in education is still in its infancy. School leaders are learning from each other, service agencies, and the business community. In quality, there is no "cookbook" to follow. True to one of its key beliefs, total quality is a constantly evolving process.

The following guidelines are not intended to be a recipe or manual. Each school system must make its own journey to quality. However, the experiences of pioneer school districts provide some directions to follow when starting out.

1. Lay the groundwork for quality. Well-thought-out preparation offers the best hope for success. Build a quality system slowly; start by developing knowledge and interest in quality concepts and attitudes.

The cultural change required in a transformation to quality is the biggest hurdle and takes the longest time. "We have begun a two-year process of team building," explains David Fultz, superintendent of the Grand Blanc Community School District, Michigan. "Every employee receives team-building training. We are building quality principles in those who have to change their thinking the most. These are the ones who can make or break the transformation."

The conversion-to-quality process may take several years, as hundreds of employees, board members, and parents learn skills in team building, consensus building, decision making, empowerment, communication, problem solving, and data and information management.

Denny Dowd, a school administrator from Texas, has this advice for school districts starting total quality management:

> "Plan out your strategy carefully. Realize you have to lay the groundwork for quality and give people a chance to grow into it. Have someone responsible keep up the momentum. Begin with a decision phase where a committee lays the foundations. This should be followed by a training phase, which is most critical. Provide a training curriculum for professional educators, nonprofessional employees, and parents, too."

Bill Borgers, superintendent of the Dickinson School District, Texas, adds, "Implementation of total quality management plans has been smooth since we began using consensus problem-solving techniques."

2. Provide everyone in the system with opportunities for learning about their processes and systems and how they work. For example, Borgers says, "All employees have completed a 30-hour course in total quality management." Myra De Byle, executive director for curriculum and instruction in the Duluth School District, Minnesota, discovers, "People need much more training before they go into quality management."

In some areas, people began studying the school system by making a flow chart of all its inputs, processes, and results. In studying a flow chart, school employees see how much they need each other in order for any of them to make a difference in the lives of children. "Each department of the Sacramento County Office of Education has identified its internal and external clients," explains David P. Meaney, superintendent, Sacramento County Schools, California. "Flow charts of each department's major processes and their relationship to internal and external clients have been completed."

3. Develop shared beliefs and understandings about children and schools. What is it that staff and the community really believe about humans and the learning process? Deming says, for example, "One is born with a natural inclination to learn and be innovative." Does everyone agree with that?

Everyone, from teachers to superintendents, should have some understanding of how and why children learn. The staff of Newman Smith High School in Carrollton, Texas, developed a set of shared beliefs about people and work. One example of these beliefs, says former Principal Charles Blanton, is the following:

> "People work best when they are in, and feel part of, a team where they can be trusted and trust each other to do their jobs; share leadership and make decisions; are accepted and respected; resolve issues with sensitivity and understanding; have the opportunity to accomplish challenging goals; and contribute to continuing improvement."

4. Work with all stakeholders in the larger educational system to identify the shared aim for the school system. "Every school system must have a written statement of purpose," says quality consultant Ronald Moen. "This includes the mission, beliefs/values, and vision of how the system will be structured or will behave in the future to accomplish the mission. Administrators, teachers, support personnel, and board members must demonstrate constantly their commitment to this written statement."

In Arlington County, Texas, at the beginning of each school year during an opening convocation, the superintendent, Richard E. Berry, presents the school system's quality management vision statement to all employees, not just teachers.

5. Identify the key "customers" at all levels in the education system. List their requirements and design your system to meet and exceed their needs. In Sacramento, says Meaney, "Surveys assessing external client needs have been utilized. Client satisfaction surveys for external and internal clients have been and continue to be developed."

Focus on the external customers to identify purpose and general direction. "For us," explains Henry E. LaBranche, superintendent, Salem School District, New Hampshire, "students and parents are the direct customers of our school system, the rest of the community are indirect customers."

Although less than 20 percent of the American population have children in school, property values increase and people move into an area because of a good school system. As a consequence, the Salem School District has begun to restructure its learning system to provide learning for more than the traditional elementary and secondary school student. Says LaBranche:

> "We sent out surveys to the community to find out how we could help the nontraditional learners, so we now offer eight-week courses and four-week courses for the underemployed, the unemployed, senior citizens, mothers for child care, etc. We are marketing ourselves as the educational service system of the community.

6. Consistently serving the school system's aim, identify key suppliers and help them learn how to help you exceed your requirements (as their customer). In Alaska's Mt. Edgecumbe High School, the students modified this principle into the following:

> "Work with the educational institutions from which students come: Minimize total cost of education by improving the relationship with student sources and helping to improve the quality of students coming into your system. A single source of students coming into a system, such as junior high students moving into a high school, is an opportunity to build long-term relationships of loyalty and trust for the benefit of the students."

Families also are "suppliers" of students. Work with them so that the children they provide are able to meet the school system's requirements, such as being ready to learn, attentive in school, and well-disciplined.

7. Identify some indicators of a poor system. These counter-quality indicators send a signal that the system is not working as efficiently and effectively as it should. When a school district wants to begin managing for quality, improvement in the following areas will provide short-term results in the context of a long-term aim:

> Duplication of work (same data gathered two or three times, same material taught in more than one class). "You never see the whole picture of the system as long as you keep focusing on individual people," explains David Gangel of Virginia. "Put more time into planning and less time into correcting errors."

In the Duluth School District, Myra De Byle says they are asking if teachers are wasting a lot of their time in noneducational tasks: "Must study hall supervisions be done by teachers? Must hall patrol be done by teachers? Does every teacher need to attend pep assemblies? How many evenings should teachers be required to invest at sports events or school social events?" Questions like these are being asked, and "the answers are not being taken for granted," comments De Byle.

Relationships where fear is operating (lack of trust, not sharing information, covering up, providing false information). "Strive for an atmosphere conducive to risk-taking and experimentation without the fear of punishment for failure," says Charles A. Melvin, superintendent, School District of Beloit Turner, Wisconsin.

"We are also trying to break down barriers between district/school, union/district, and elementary/secondary," says Lee Jenkins, superintendent of the Enterprise School District, California. "We're driving out fear and creating more joy."

Ineffective processes (bottlenecks, barriers, missing pieces, redundancies). Complicated procedures for registration, purchasing, or library use could be examples.

8. Start collecting and reviewing data that will provide knowledge for improving the school system and its variations.

In the Crawford Central School District of northwestern Pennsylvania, data collection is being done by the administration, teachers, and students. As the superintendent, Robert Bender, explains: "Our focus is on improving the quality of the instructional process and those systems that support it."

One study measured the amount of time needed for psychological referrals, that is, from the date of the original referral for a gifted or special education child, to the date when the referral team made a decision. The studies used many standard statistical tools, such as control charts ("the workhorse of all tools," says Bender), cause and effect diagrams, and flow charts. Bender reports that four other studies have been designed for the coming school year.

9. Elicit suggestions for improvement from the people who are close to a process. For example, in classrooms, teachers are in the best position to identify and monitor the needs and progress of students. Teachers, therefore, "ought to have significant roles in the instructional planning and delivery. People don't feel as much responsibility for the outcome of something unless they have some degree of ownership," says Willis B. McLeod, superintendent, Petersburg Public Schools, Virginia.

The suggestion technique works only if management has developed trust in the school atmosphere, which allows people to try out new ideas, make mistakes, and not fear punishment. "In Japan," explains Superintendent Meaney, "the average employee submits 32 suggestions

Involving Students in the Quest for Quality

In Dickinson, Texas, the quality system is operational enough to involve students. Superintendent Bill Borgers says "students are starting to assess their own work for quality. They are allowed to improve their grades, and in some classes they are teaching each other the quality tools that were taught to the teachers."

Before involving students in quality assessment, Borgers explains, a district needs to lay the proper groundwork. In Dickinson, students follow a progression of quality exercises that ultimately leads to self-evaluation:

1. Students define quality by identifying a quality car, television program, or any object or person. The teacher encourages class discussion about what makes these things "quality."
2. Next, classes discuss quality in relation to schoolwork. A teacher can provide examples of different types of work and ask students to identify quality work and explain why.
3. Starting with one project or assignment, students are asked to put a "Q" on their work if they think it meets their agreed-on definition of quality.
4. In time, students are asked to grade their own assignments. The teacher also will grade them, and the two grades are averaged together.

Borgers says that initial reactions to this process have been "very enthusiastic. Kids are really buying into ownership of their work. They're setting high standards and being pretty tough on themselves."

for improvement annually. In the United States in companies that have employee suggestion systems, the average number of suggestions per employee is 0.12." Referring to his school district, Meaney adds, "In Sacramento, employees are guaranteed that their problem or suggestion will be addressed within 14 working days." More than 80 percent of these suggestions are implemented.

10. Talk with and learn from other people who are on the same quality management path as your school system. But do not blindly imitate them or use their procedures as a recipe for your system without first obtaining a thorough understanding of your own system and processes.

For example, superintendents from three Wisconsin school districts began the process of restructuring their districts by applying Deming's beliefs on quality. All three had studied at the same school with the

same professor and began the transformation in their districts at the same time as a consortium. "We soon learned that there was no specific Deming process to follow," explains Superintendent Charles Melvin of the School District of Beloit Turner. "Rather, Deming offers an alternative way of viewing an organization."

11. Get help from an outside consultant who knows quality management and understands how schools work as systems. Often people within a system cannot see how to transform it, since the prevailing management style is the only thing they know.

"The consortium," says Melvin, "used a different outside consultant for each of the strands [curriculum, governance, instruction, and decision-making evaluation]."

An outside expert can ask the questions that will give educators a new perspective and lead them carefully through this long and complex process. "One-shot workshops or inspirational speakers," cautions Melvin, "will not be sufficient to change instructional beliefs and methodologies. Boards of education and administrators need to become familiar with the change process and its application in schools."

12. Align the school district in partnership with a business corporation that has itself begun a quality transformation. "One thing is sure, as you begin to develop your quality program," says Houlihan, superintendent in Johnston County, North Carolina, "you will need outside experts who have demonstrated their knowledge/expertise. These persons must become partners with you on your road to total quality in schools."

A number of school districts have gone into quality partnerships with the Xerox Corporation. Other corporations that have "adopted" school districts include IBM, General Motors, and Hewlett-Packard. Superintendent Borgers reports that a team approach to problem solving, a seven-step method taught to them by Monsanto and Sterling Chemicals, has been used to solve serious district problems. "The most success has come from using the model to solve our workers' compensation problems and gifted/talented identification problems."

When seeking a business partnership, look for local corporations committed to quality management as likely candidates for a long-term involvement with your school district. Superintendent David Fultz of Michigan, says, "We are in liaison with GM; we are following their model, and learning from their mistakes."

13. Involve the larger community in a school's quality enterprise. On quality steering committees, include not only teachers and principals, but parents, people from the community and its agencies, and employees from the central office.

Resources

The American Association of School Administrators offers educators several resources on total quality management in schools, including publications, audiovisuals, seminars and other training opportunities, and an information-sharing body called the Total Quality Network. For more information, call AASA's membership and customer information center, (703) 875-0748.

In addition to AASA, the following organizations offer a variety of total quality management services and products:

American Society for Quality Control
611 E. Wisconsin Avenue
P.O. Box 3005
Milwaukee, WI 53201-3005
(414) 272-8575

Jimmy Chancey
Virginia Department of Education Regional Services
P.O. Box 6Q
Richmond, VA 23216-2060
(804) 225-2707

Goal/QPC
13 Branch Street
Methuen, MA 01844
(508) 685-3900

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"The most obvious success is the enthusiasm and excitement of all staff generated by this philosophy. It has rekindled the spirit of educators frustrated by an antiquated system of education. It also has generated enthusiasm among students as the quality process has shifted attention from grades to learning, and shifted more responsibility for learning from teachers to students."

—Monta Akin
Assistant Superintendent
Leander Independent School District, Texas

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